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Title: Innovative applications of block preconditioning and fast linear solvers

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Innovative applications of block preconditioning and fast linear solvers



Ben S. Southworth

Postdoctoral Fellow
Research Showcase
Jan 27, 2022

Year at a glance

Author/co-author papers:

- Three papers accepted for publication in SISC.
- Three papers currently in review (SISC and NLAA).
- Four papers in preparation, will submit this winter/spring.
- Three conference procs. at American Nuclear Society M&C.

Other:

- Lead author, co-PI on accepted ER proposal (FY22-FY24).
- Subcontract from JPL to model for NASA mission proposal.
- Co-mentoring 2022 summer student from Virginia Tech.
- Invited plenary talk at 2021 parallel-in-time workshop.

Ongoing and upcoming research

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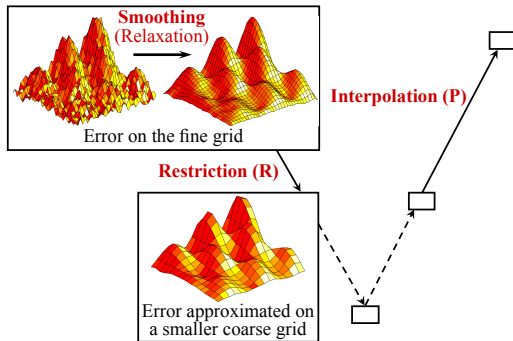
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2. Implicit-explicit and multirate time integrators for multiphysics, including rad-hydro (ER), Tokamak, and ground water flow.

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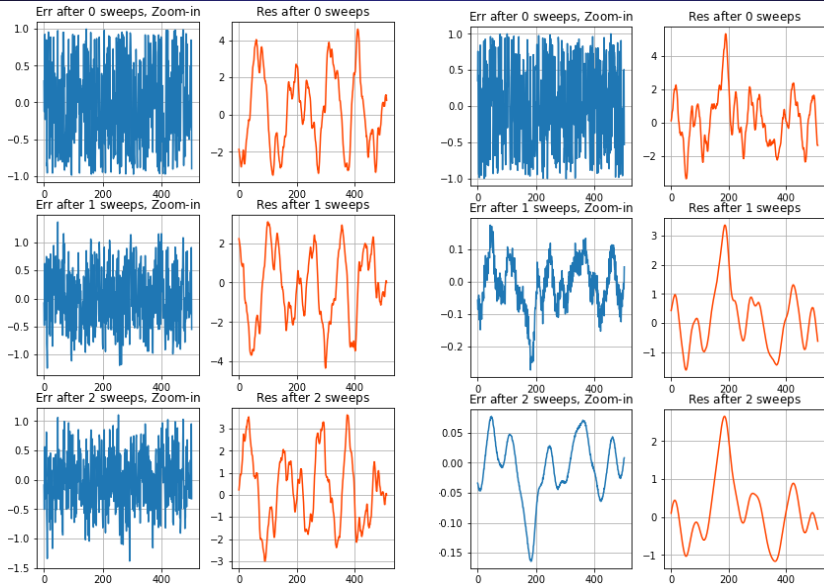
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For data samples $\{s_1, \dots, s_n\}$ *Kernel* operators constructed from distance between points; comes up in Gaussian process regression, optimal transport, support vector machines.

⇒ How do we *smooth* kernels??

Distributive relaxation for kernels



Thank you LANL and LDRD/ASC!